

### Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

### Listing of Claims:

1. (Currently Amended) An apparatus for detecting ~~[[an]]~~ analytes, comprising:
  - (a) ~~an integrated circuit including a light detection system~~ a substrate;
  - (b) ~~a selectively permeable container attached to a substrate located on said integrated circuit~~ an integrated circuit including a light detection system formed using said substrate;
  - (c) ~~a layer of semiconducting material between said substrate and said container~~ a selectively permeable container attached to said substrate located on said integrated circuit;
  - (d) a microorganism housed within said container wherein the microorganism metabolizes a selected analyte to emit light in response to a metabolite of said analyte;
  - (e) ~~a semiconductive layer~~ of bioresistant/biocompatible material disposed between the substrate and the container; and
  - (f) a fluid nutrient reservoir equipped with a microfluidic pump on said substrate.
2. (Currently Amended) The apparatus of claim 1 wherein the ~~semiconductor layer is~~ a metal oxide integrated circuit is a CMOS integrated circuit.

3. (Currently Amended) The apparatus of claim 2 wherein the ~~metal oxide is a complementary metal oxide layer that~~ CMOS integrated circuit includes a photodiode, a current to frequency converter, a digital counter, and a wireless transmitter.
4. (Original) The apparatus of claim 3 further comprising a central data collection station to receive transmissions from said transmitter.
5. (Original) The apparatus of claim 1 wherein the microorganism is *Pseudomonas fluorescens* HK44.

6.-35. (Withdrawn)